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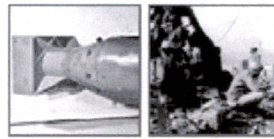
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## San Francisco Chronicle

### HIROSHIMA: The birth of nuclear warfare Second-tier powers join arms race Experts fear global spread of small nukes

James Sterngold, Chronicle Staff Writer  
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The atomic bombing of Hiroshima on Aug. 6, 1945, was to change the course of history, but as Harold Agnew witnessed the flash that is estimated to have killed more than 100,000 people, he thought of just one thing -- destroying the enemy.



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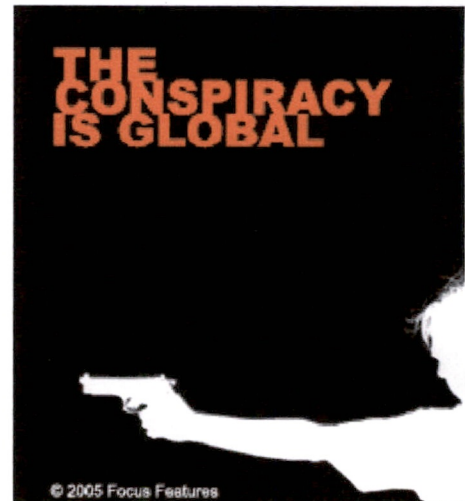
Agnew, then a frightened 24-year-old physicist flying in a plane alongside the Enola Gay bomber, was in charge of measuring the yield of a blast that burned hotter than the sun. He had helped design the atomic bomb at Los Alamos, N.M. But for all the impact this unique new weapon would have on science, military planning and geopolitical rivalries, Agnew, now 84, said he and his colleagues saw the bomb in simpler terms, as an instrument of their anger at Japan for launching the war, and as a way of stopping the war.

"We all wanted to crush the Japanese," Agnew, who became director of the Los Alamos National Laboratory in the 1970s, said in an interview. "My only concern was winning the war. To say we were embittered would have been an understatement."

Within a few years, the full import of the 9,600-pound "Little Boy" warhead dropped on Hiroshima became clear. The technology spread, the arms race and Cold War with the Soviet Union revved up and immensely more powerful thermonuclear warheads were developed. An abstract and dangerous poker game was played by the superpowers in which the stakes were apocalyptic. But catastrophe seemed to grow increasingly remote because the feared war strategies involving the launching of thousands of missiles never took place.

Now a new, lower-profile arms race has started that, experts say, is far less abstract and could prove to be more dangerous. Six decades after the atomic bombings of Hiroshima and Nagasaki, and 16 years after the collapse of the Soviet Union, nuclear technology is proliferating among second-tier powers and, it's a possibility, among terrorist groups. The legacy of Hiroshima -- when the weapons were built not just to deter but to be used -- has painful new relevance.

It is almost as though history has come full circle. The concern now is not Cold War brinkmanship but the prospect, once again, that a single



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weapon detonated in anger could instantly send history in a violent new direction.

"Today, a single nuclear detonation in Detroit or New York City would dramatically change our society in every respect: our politics, our civil liberties, our relations with other states," said Steve Andreasen, a nuclear weapons expert in the Reagan, first Bush and Clinton administrations.

"During the Cold War, the idea of a single explosion was not seen as a credible issue," Andreasen said. "Now we're back again to the notion of small-scale use of a nuclear weapon, and the reality is that the effect would be as great as it was 60 years ago."

Single attack likely

"The likelihood of a single attack in a single city is greater than ever, not the massive attacks we imagined in the Cold War," said Graham Allison, the director of the Belfer Center for Science and International Affairs at Harvard's Kennedy School of Government and a senior Defense Department official in the Clinton administration.

Eugene Habiger, a retired Air Force general who during the 1990s led the U.S. Strategic Command, the military arm that prepares for and would manage a nuclear war, said a bomb would not even have to be used accurately.

"It would have a horrific impact by any measure," said Habiger, now a member of the board of the Nuclear Threat Initiative, an international nongovernmental group that is working to reduce nuclear stockpiles. "You might only kill 5,000 people or so, but you would change the society, the politics, the economics of the United States of America. That's what I call the greatest threat in the 21st century."

"It's no longer about large military forces fighting head to head," Habiger added. "It's what I call asymmetric warfare."

One of the few things President Bush and Sen. John Kerry agreed on in the 2004 presidential campaign was that nuclear terrorism was the single gravest threat the U.S. faces. The president has placed halting North Korea's and Iran's nuclear programs at the top of his policy agenda, and he has refused to rule out military strikes or war to stop them.

But many experts say the problem goes well beyond those countries, and some worry that Bush's nuclear policies are increasing the threat. The president has indicated he wants to replace the current aging stockpile with a new generation of more flexible warheads, which some experts say could make possession of the weapons appear even more essential and encourage other countries to ramp up their own efforts.

The president offered last month to provide India with commercial nuclear technology, abandoning a long-standing U.S. policy of not helping India so long as it remains outside the Nuclear Non-Proliferation Treaty, the system for monitoring nuclear facilities and preventing the spread of weapons technology.

"How do you say India can and Iran can't?" said Sidney Drell, a longtime government nuclear policy adviser and a professor and deputy director emeritus at the Stanford Linear Accelerator Center. "I'm more than a little uncomfortable with our India policy. We're at a danger point as to maintaining a hold on the nonproliferation regime."

William Potter, who leads the nonproliferation program at the Monterey Institute of International Studies, said Bush is sending a mixed signal that

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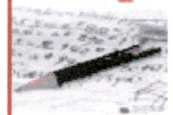
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might push some countries to consider the nuclear option.

"The Bush administration is really saying that some proliferation is bad and some is good," Potter said. "The president is working at odds with his own policy."

'Equalizer for the weak'

The current threat goes well beyond North Korea and Iran, said Allison, the former Clinton administration official.

"There could be a cascade of proliferation if North Korea and Iran both go nuclear," said Allison, who has written extensively on nuclear terrorism. "People take a false comfort from the Cold War experience. The strategic logic (now) is this: Nuclear weapons are the equalizer for the weak, not the stronger."

Three factors generally make the new arms race slowly taking shape more troubling than the Cold War version, experts said.

-- First, only a tiny number of industrialized countries had the technological means to build warheads during the Cold War. Today, eight states possess the weapons, with North Korea possibly the ninth. But there are now dozens of countries that have developed the basic capability to enrich uranium or reprocess plutonium, the key to producing warheads.

Perhaps 40 countries now have such technical knowledge, Mohamed ElBaradei, the head of the International Atomic Energy Agency, said in an interview last year. Few are in fact enriching uranium, but ElBaradei said these efforts amount to "latent weapons programs."

Japan, South Korea, Taiwan and South Africa fall into this category.

-- Second, with the dissemination of nuclear know-how to countries from Pakistan to Sweden to Brazil, shadowy nuclear technology rings have taken shape, making once forbidden equipment and expertise far more widely available to terrorists and other groups, as well as nations.

Concerns over such networks have grown sharply since Pakistan disclosed that the father of its weapons program, Abdul Qadeer Khan, had for years been illegally selling nuclear enrichment technology and even bomb plans to North Korea, Libya and, it is believed, Iran. He relied on a network that wove its way through Qatar, Malaysia and other countries.

-- The third and perhaps most troubling aspect of the new arms race is the presence of terrorist groups like al Qaeda that are not bound by the discipline of self-preservation, which helped restrain the Soviets and the United States, as well as China, which has its own small nuclear arsenal, during the Cold War.

Groups that produce suicide bombers by the dozen are believed eager not just to obtain nuclear weapons but to use them, no matter the costs. They don't follow the logic of deterrence, so Cold War tactics don't apply; these groups rarely even have an easily identified headquarters to retaliate against.

Such groups would focus not on precision or maximum yield, just detonating a nuclear device in a populated area.

'It really went off'

Theirs is not unlike the thinking behind the Hiroshima bombing, which, as Agnew recalled, was fraught with uncertainties. Agnew, who is retired and living near San Diego, said that while preparing for the Hiroshima blast he had been terrified that he might not survive it, that he might be on a suicide mission. No one knew how the bombers would be affected. He recorded only one thought, he recalled, in his flight log.

"Wow! It really went off," he said he wrote without acknowledgement of the broader meaning of the moment. "It really worked."

After the collapse of the Soviet Union in 1989, few expected a new arms race. There was widespread talk of weapons reductions, even disarmament, as one of the peace dividends Americans would enjoy. It now seems distant, but in 1995 an anti-nuclear organization, the Pugwash Conferences on Science and World Affairs, won the Nobel Peace Prize in recognition of the new tenor of the times.

The superpowers have made some strides in reducing their arsenals. The United States, which at its peak fielded more than 32,000 warheads, now has about 10,000; Russia has about 7,200. The two countries have deactivated 6,632 warheads and destroyed 582 intercontinental ballistic missiles, according to the Russian American Nuclear Security Advisory Council. Under the Moscow Treaty, each side has committed to reducing its arsenal to 2,200 or fewer deployed warheads by 2012.

The desire to prevent nuclear proliferation traces back to the months immediately following the horrifying bombings at Hiroshima and Nagasaki.

President Harry Truman always said he had no regrets about dropping the two atomic bombs on Japan to end World War II. But he did worry about the spread of the weapons.

"The hope of civilization lies in international arrangements looking, if possible, to the renunciation of the use and development of the atomic bomb," he wrote in a letter to Congress on Oct. 3, 1945.

The next U.S. president, Dwight Eisenhower, proposed in his famous "Atoms for Peace" speech at the United Nations on Dec. 8, 1953, that the United States and the Soviets scrap their warheads. He suggested that they hand over the secrets of the atom to a U.N. body that would share them for civilian purposes and produce an age of prosperity.

But neither side gave up its warheads, and the arms race roared on. Eisenhower's proposal fostered a system that provided training and civilian nuclear equipment to scientists around the world, unintentionally setting the stage for the proliferation of nuclear technology.

#### Regional tensions

Superpower rivalries no longer drive the arms race, making the Cold War model all but irrelevant. Regional tensions that long predate that ideological conflict and far exceed its emotional content are the challenge now.

In their standoff, India and Pakistan have both developed and tested nuclear weapons.

Israel has built what is believed to be a large clandestine arsenal to fend off its neighbors, including Syria, Egypt and Iran.

If Iran succeeds in building warheads, it is expected to increase the pressure on Turkey, Syria, Saudi Arabia and Egypt to push forward with programs.

And similar friction has eastern Asia on edge as it watches American negotiators trying to force North Korea to abandon its weapons and extensive nuclear facilities.

Donald Gregg, president of the Korea Society in New York and a former senior CIA officer in Asia and ambassador to South Korea, said that if the United States fails, then Japan, South Korea and even Taiwan could consider building arsenals. They already have advanced nuclear capabilities.

"There is a sort of nuclear domino theory now," said Gregg, who traveled three times recently to North Korea. "If we can stop North Korea I think we can stop the region from going nuclear. This is our last best shot."

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Page A - 1

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